PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference PCT2210DK006jpe	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/EP2005/000145	International filing date *(day/month/year)* 10 January 2005 (10.01.2005)	Priority date *(day/month/year)* 22 January 2004 (22.01.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 12 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☒	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 24 July 2006 (24.07.2006)
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Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)* see form PCT/ISA/210 (second sheet)	
Applicant's or agent's file reference see form PCT/ISA/220	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/EP2005/000145	10.01.2005	22.01.2004

International Patent Classification (IPC) or both national classification and IPC
H04L1/16

Applicant
MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2005/000145

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	3-7, 10, 12-16,18,21
	No:	Claims	1,2,8,9,11,17,19,20,22,23
Inventive step (IS)	Yes:	Claims	4-7, 10, 12, 13, 15, 16
	No:	Claims	1,2,3,8,9,11,14,17,18,19,20,21,22,23
Industrial applicability (IA)	Yes:	Claims	1-23
	No:	Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

1. The following documents (D) are referred to hereby:

D1: US 2002/168945 A1 (KWON HYUCK CHAN ET AL) 14 November 2002 (2002-11-14)
D2: US 2002/191544 A1 (HSU LIANGCHI ALAN ET AL) 19 December 2002 (2002-12-19)

1. The present application does not meet the requirements of Article 33 PCT, because the subject matter of claims 1,2,8,9,11,17,19,20,22,23 is not new in the sense of Article 33(2).

1.1 Claim 1: The document D1 discloses a method for controlling the transmission timing of data transmission, whereby the receiving entity performs the method steps of:
receiving a data packet from a transmitting entity
(page 5, right column, paragraph 72, lines 1-5)
determining whether the data packet has been successfully received
(page 5, right column, paragraph 72, lines 1-5)
if it has been determined that the data packet has not been successfully received, determining whether the interference level is above or equal to a predetermined threshold interference level (page 5, right column, paragraph 73, lines 1-6)
generating a feedback message
(page 5, right column, paragraph 73, lines 6-13)
wherein the feedback message indicates to the transmitting entity to transmit a retransmission data packet for said received data packet after a first predetermined time span upon having received said feedback message, if the determined interference level is below the predetermined threshold interference level
(page 5, right column, paragraph 73, lines 6-13 page 5, right column, paragraph 74, lines 1-12)
wherein the feedback message indicates to the transmitting entity to transmit a retransmission data packet for said received data packet after a second predetermined time span upon having received said feedback message, if the determined interference level is above or equal to the predetermined threshold interference level
(page 5, right column, paragraph 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)
transmitting the feedback message to the transmitting entity
(page 6, left column, paragraph 85, lines 1-9)

1.2 Claim 11: The document D1 discloses a method for controlling the transmission timing of data transmission, whereby the transmitting entity performs the method steps of:
transmitting a data packet to a receiving entity
(page 5, right column, paragraph 72, lines 1-5)
receiving a feedback message for the transmitted data packet from the receiving entity
(page 6, left column, paragraph 85, lines 1-9)
wherein the feedback message indicates to the transmitting entity whether to transmit a retransmission data packet for said received data packet after a first or a second predetermined time span upon having received said feedback message
(page 5, right column, par. 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)
transmitting a retransmission data packet to said receiving entity after a first or a second predetermined time span upon having received said feedback message in response to said feedback message
(page 5, right column, par. 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)

1.3 Claim 17: The document D1 discloses a base station in a wireless communication system the base station comprising
receiving means for receiving a data packet from a transmitting entity
(page 5, right column, paragraph 72, lines 1-5)
processing means for determining whether the data packet has been successfully received
(page 5, right column, paragraph 72, lines 1-5)
wherein the processing means is adapted to determine whether the interference level is above or equal to a predetermined threshold interference level, if it has been determined that the packet has not been successfully received
(page 5, right column, paragraph 73, lines 1-6)
feedback message generation means for generating a feedback message
(page 5, right column, paragraph 73, lines 6-13)
wherein the feedback message indicates to the transmitting entity to transmit a retransmission data packet for said received data packet after a first predetermined time span upon having received said feedback message, if the determined interference level is below the predetermined threshold interference level
(page 5, right column, par. 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)
wherein the feedback message indicates to the transmitting entity to transmit a retransmission data packet for said received data packet after a second predetermined time span upon having received said feedback message, if the determined interference

level is above or equal to the predetermined threshold interference level
(page 5, right column, par. 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)
transmitting the feedback message to the transmitting entity
(page 6, left column, paragraph 85, lines 1-9)

1.4 Claim 20: The document D1 discloses a mobile terminal in a wireless communication system, the mobile terminal comprising:
transmitting means for transmitting a data packet to a base station
(page 5, right column, paragraph 72, lines 1-5)
receiving means for receiving a feedback message for the transmitted data packet from the base station
(page 6, left column, paragraph 85, lines 1-9)
wherein the feedback message indicates to the transmitting entity whether to transmit a retransmission data packet for said received data packet after a first or a second predetermined time span upon having received said feedback message
(page 5, right column, paragraph 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)
wherein the transmitting means is adapted to transmit a retransmission data packet to a base station after a first or a second predetermined time span upon having received said feedback message in response to said feedback message
(page 5, right column, paragraph 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)

1.5 Claim 23: The document D1 discloses a wireless communication system comprising at least a base station according to claims 17 to 19 and at least one mobile terminal according to one of claims 20 to 22 (page 1, left column, paragraph 6, lines 6-13 Fig.1)

1.6 Dependent Claims: Dependent claims 2,8,9,19,22 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the with respect to novelty. The document D1 discloses the additional features of claims 2 (page 5, right column, paragraph 74, lines 1-12; page 6, left column, paragraph 75, lines 11-15), 8 and 9 (page 2, left column, paragraph 24, lines 1-10), 19 and 22
(page 2, left column, paragraphs 21 and 22).

2. The present application does not meet the requirements of Article 33 PCT, because the subject matter of claims 3, 14, 18 and 21 is not inventive in the sense of Article 33(3) PCT.

2.1 Claim 3: Document D1, which is considered to represent the most relevant state of the art, discloses a method for controlling the transmission timing of data transmission, whereby the receiving entity performs the method steps of:
receiving a data packet from a transmitting entity
(page 5, right column, paragraph 72, lines 1-5)
determining whether the data packet has been successfully received
(page 5, right column, paragraph 72, lines 1-5)
if it has been determined that the data packet has not been successfully received, determining whether the interference level is above or equal to a predetermined threshold interference level
generating a feedback message
(page 5, right column, paragraph 73, lines 1-6)
wherein the feedback message indicates to the transmitting entity to transmit a retransmission data packet for said received data packet after a first predetermined time span upon having received said feedback message, if the determined interference level is below the predetermined threshold interference level
(page 5, right column, paragraph 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)
transmitting the feedback message to the transmitting entity
(page 6, left column, paragraph 85, lines 1-9)

from which the subject-matter of claim 3 differs in that
the feedback message indicates to abort a retransmission data packet for said received data packet, if the determined interference level is above or equal to the predetermined threshold interference level

The problem to be solved by the present invention may therefore be regarded as the increase in traffic load as a result of the extra retransmissions.

The solution proposed in claim 3 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Document D1 solves the above problem by issuing commands for delaying retransmission by different amounts of delay. It is obvious to a person skilled in the art that aborting transmission is a last resort or alternative of trying different delay times, especially when a range of delays is already available, such as the range of delays in D1.

D2 is provided here as an example of an HARQ system, whereby the problem of transmission / retransmission load (page 1, right column, paragraph 13, lines 1-13) is solved by issuing a command for aborting retransmission (page 1, right column, paragraph 15 - page 2, left column, paragraph 16).

The feature of retransmission abort as described in D2 provides the same advantages as in the present application. The skilled person would therefore regard it as a normal design option to include this feature in the method described in document D1 in order to solve the problem posed.

2.2 Claim 18: Claim 18 comprises means corresponding to the method steps of claim 3. The subject-matter of claim 18 does not involve an inventive step, as for Claim 3. The argumentation of paragraph 2.1 is not repeated here for reasons of economy.

2.3 Claim 14: Document D1, which is considered to represent the most relevant state of the art, discloses a method for controlling the transmission timing of data transmission, whereby the transmitting entity performs the method steps of:
transmitting a data packet to a receiving entity
(page 5, right column, paragraph 72, lines 1-5)
receiving a feedback message for the transmitted data packet from the receiving entity
(page 6, left column, paragraph 85, lines 1-9)
wherein the feedback message indicates to the transmitting entity whether to transmit a retransmission data packet for said received data packet after a first predetermined time span upon having received said feedback message
(page 5, right column, paragraph 73, lines 6-13; page 5, right column, par. 74, lines 1-12)
or to abort a retransmission of said received data packet
transmitting a retransmission data packet to said receiving entity after a first predetermined time span upon having received said feedback message in response to said feedback message
(page 5, right column, par. 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)

from which the subject-matter of claim 14 differs in that
the feedback message indicates to the transmitting entity whether to abort a retransmission of said received data packet
(page 5, right column, paragraph 73, lines 6-13; page 5, right column, paragraph 74, lines 1-12)

The problem to be solved by the present invention may therefore be regarded as the increase in traffic load as a result of the extra retransmissions.

The solution proposed in claim 14 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

Document D1 solves the above problem by issuing commands for delaying retransmission by different amounts of delay. It is obvious to a person skilled in the art that aborting transmission is a last resort or alternative of trying different delay times, especially when a range of delays is already available, such as the range of delays in D1.

D2 is provided here as an example of an HARQ system, whereby the problem of transmission / retransmission load (page 1, right column, paragraph 13, lines 1-13) is solved by issuing a command for aborting retransmission (page 1, right column, paragraph 15 - page 2, left column, paragraph 16).

The feature of retransmission abort as described in D2 provides the same advantages as in the present application. The skilled person would therefore regard it as a normal design option to include this feature in the method described in document D1 in order to solve the problem posed.

2.4 Claim 21: Claim 21 comprises means corresponding to the method steps of claim 14. The subject-matter of claim 21 does not involve an inventive step, as for Claim 14. The argumentation of paragraph 2.3 is not repeated here for reasons of economy.

3. Claims 4-7, 10, 12, 13, 15 and 16: The subject matter of claims 4-7, 10, 12, 13, 15 and 16 is both new and inventive and satisfies the requirement of Article 33 PCT.

Re Item VII

1. The following mistakes have been identified:

1.1 Claim 11 (receiving step): The phrase "indicates whether to the transmitting entity to transmit a retransmission data packet" should have read as "indicates to the transmitting entity whether to transmit a retransmission data packet"

1.2 Claim 14 (receiving step): The phrase "indicates whether to the transmitting entity to transmit a retransmission data packet" should have read as "indicates to the transmitting entity whether to transmit a retransmission data packet"

1.3 Claim 20 (receiving means): The phrase "indicates whether to the transmitting entity to transmit a retransmission data packet" should have read as "indicates to the transmitting entity whether to transmit a retransmission data packet"

1.4 Claim 21 (receiving means): The phrase "indicates whether to the transmitting entity to transmit a retransmission data packet" should have read as"indicates to the transmitting entity whether to transmit a retransmission data packet"

1.5 Claim 23: The phrase "according to on of claims 20 to 22" should have read as "according to one of claims 20 to 22"

2. The requirements of Rule 5.1(a)(ii) PCT are not met since the document D1 is not identified in the description and the relevant background art disclosed therein is not briefly discussed.

3. The requirements of Rule 6.3(b) PCT are not met, since the two-part form is not used for the independent claims.

4. The requirements of Rule 6.2(b) PCT are not met, in that the terms in parenthesis T_{sync} and T_{halt} in claims 1, 3, 11, 14 and 21 create confusion by being perceiving as to referring to figures of this application.

Re Item VIII

1. Although method claims 1 and 3 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection.

Hence, claims 1 and 3 do not meet the requirements of Article 6 PCT.

The same objection also holds for the following pairs of claims:
- method claims 11 and 14
- base station claims 17 and 18
- mobile terminal claims 20 and 21